

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Ralph W. Cooper

Examiner: Charles D. Garber

Serial No.: 10/665,921

Group Art Unit: 2856

Filed: September 18, 2003

Docket: MAT0001-US1

For: Leak Detection System

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**APPELLANTS' BRIEF ON APPEAL**

Mail Stop Appeal Brief- Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450



Dear Sir:

The Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on August 11, 2005, from the Final Rejection of claims 1-19 of the above-identified application, as set forth in the Final Office Action mailed on May 17, 2005.

This Appeal Brief is filed in triplicate. The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 50-3019 in the amount of \$250.00 which represents the requisite fee set forth in 37 C.F.R. § 117. The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

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## **APPELLANTS' BRIEF ON APPEAL**

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### **1. REAL PARTY IN INTEREST**

The real party in interest of the above-captioned patent application is the assignee, MICHIGAN AQUA TECH.

### **2. RELATED APPEALS AND INTERFERENCES**

There are no other prior or pending appeals, interferences, or judicial proceedings known to appellant, the appellant's legal representative, or assignee which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal

### **3. STATUS OF THE CLAIMS**

Claims 1-23 are pending in the present proceeding. Claims 1-19 are rejected and Claims 20-23 have not been addressed by the Examiner. However, the Examiner may not be aware of Claims 20-23 that were added in the Response filed May 4, 2005. For purposes of this proceeding, Applicant is assuming that Claims 20-23 are also rejected for the same reasons as Claims 1-19.

### **4. STATUS OF AMENDMENTS**

In the Response filed July 18, 2005 (i.e., subsequent to final rejection), Applicant attempted to amend Claims 1, 8, and 15 to add a comma between the word "single" and the word "user" in each claim. The Examiner did not enter these amendments, alleging they raise new issues that would require further consideration and/or search.

### **5. SUMMARY OF THE INVENTION**

The present invention provides for leak detection systems that are capable of automatically detecting a leak in a pressurized piping system. The present invention utilizes a pressure decay test to test for leaks in the piping system. Systems of the present invention also test for user demand on the piping system before initiating a pressure decay test in order to minimize or eliminate disruption to a user of the piping system. Thus, a leakage test is performed by first determining whether there is user demand on the piping system and proceeding with a pressure decay test only if there is no user demand present. If user demand is initiated during the performance of a pressure decay

test, the system detects the user demand and halts the pressure decay test until demand stops.

All claims in the present appeal comprise a limitation of “a single user demand detector.” Applicant contends that it is this limitation that is the focus of the present appeal. Figure 1 illustrates an embodiment of a leak detection system according to the present invention. The leak detection system of Figure 1 comprises a single flow switch 116 (i.e., a user flow detector). The specification, especially at page 9, line 26 to page 12, line 29 explains the use of this single flow switch in accordance with the present invention.

## **6. ISSUES PRESENTED FOR REVIEW**

Claims 1-19 (and presumably Claims 20-23) are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,441,070 issued to Thompson (“Thompson”). Regarding independent Claims 1, 8, and 15, and thus, all claims on appeal, the Examiner alleges that Thompson discloses a leak detection system that may be used with a house or a building. The Examiners further alleges that the difference between the present invention and Thompson is that Thompson does not expressly disclose the house (or building) occupied by a single user. The Examiner takes Official Notice that it is widely known for houses to be occupied by a single user.

It appears that the only issue presented for review involves the proper interpretation of the phrase “single user demand detector.” Applicant believes the Examiner has interpreted the phrase “single user demand detector” present in independent Claims 1, 8, 15 such that the word “single” modifies the word “user” instead of modifying the word “detector.” Applicant contends that the specification makes clear that a “user demand detector” is a detector for determining whether user demand is present and that embodiments of the present invention (e.g., Figure 1) utilize only one (i.e., a single) detector.

## **7. ARGUMENT**

The phrase “single user demand detector” refers to a single detector that is used to determine whether user demand is present. “Generally, leak detection systems according

to the present invention comprise control logic, a user demand detector in communication with the control logic, a pressure decay detector in communication with the control logic, and a shut-off valve in communication with the control logic. Page 4, lines 7-10 (emphasis added). “Typically, the present invention utilizes a single flow switch positioned near the control logic . . . .” Page 5, lines 23-24. Also, see page 10, line 18. Figure 1 and accompanying text makes it clear that a flow switch is an example of a detector for determining user demand and that typically a single flow switch is utilized.

Applicant contends that the claims differentiate the Applicant’s invention from Thompson. The claims require but one (i.e., a single) detector whereas Thompson requires a plurality of flow sensors (i.e., user demand detectors). It is precisely this difference that makes the present invention significantly less expensive to manufacture, install, and to maintain than the cost-prohibitive system of Thompson. This was explained in the Response filed May 4, 2005 in the following manner:

The multiple flow sensors required in Thompson create exactly the kind of complexity that the present invention seeks to avoid. The cost of producing and installing a fluid management system with a plurality of flow sensors can be prohibitively expensive. Moreover, the complexity of the system makes it significantly more expensive and difficult to maintain than the present invention. Each flow sensor in Thompson is connected by wire to a management device 100. See Figure 1. The average residential structure will have a significant number of wires running from the management device 100 to each of the flow sensors. Installing all the wires is an extremely time consuming and expensive endeavor, especially in an already existing home. Many commercial structures will be larger and have even more flow sensors, requiring even more wiring.

The present invention, on the other hand, utilizes a single user demand detector. The single user demand detector can be positioned in close proximity to the other elements of the present invention (pressure decay detector, shut-off valve, etc.), as shown in Figure 1, so that the present invention can be easily placed in a single housing structure. Thus, the entire leak detection system can be more easily installed and maintained than the system in Thompson.

Nowhere in the specification is there any discussion that differentiates the user demand produced by a single user versus user demand produced by multiple users. Moreover, one of ordinary skill in the art would readily understand that user demand is created downstream of the detector regardless of how many users may be creating the

demand. It is a stretch indeed to interpret the present claims and specification as teaching and requiring the use of a detector for detecting the demand created by a single user.

## **8. SUMMARY**

Applicant respectfully requests that the rejection of all claims be withdrawn and that a Notice of Allowance be issued in this matter. Applicant also respectfully requests that the amendments attempted to be entered subsequent to final rejection be entered as they are only grammatical in nature.

Respectfully submitted,

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Date November 14, 2005 By Stanley K Hill  
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Appeal Brief, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 14 day of November, 2005.

Chris Hummer  
Name

Chris Hummer  
Signature

## **APPENDIX I**

### **The Claims on Appeal**

1. (Previously Presented) A method for use in detecting a leak in a pressurized piping system conveying a liquid, comprising the steps of:

using a single, user demand detector to test for the presence of user demand on the pressurized piping system; and

determining whether pressure decay is present in the pressurized piping system when no user demand is present.

2. (Original) A method according to Claim 1, wherein the piping system conveying a liquid is a waterline.

3. (Original) A method according to Claim 2, wherein the waterline is a residential waterline.

4. (Original) A method according to Claim 3, wherein the testing step comprises determining whether there is a flow rate in the piping system that is greater than or equal to a preset minimal user flow rate.

5. (Original) A method according to Claim 4, wherein the minimal user flow rate is about 0.2 gallons per minute.

6. (Original) A method according to Claim 3, wherein the step of determining whether pressure decay is present comprises determining whether the pressure in the piping system has dropped below a minimum acceptable pressure.

7. (Original) A method according to Claim 6, wherein the minimum acceptable pressure is about 15 psig.

8. (Previously Presented) A method for use in detecting a leak in a pressurized piping system conveying a liquid, comprising the steps of:

using a single, user demand detector to test for the presence of user demand on the pressurized piping system;

determining whether pressure decay is present in the piping system when no user demand is present; and



preventing flow of liquid into the piping system when pressure decay is present and no user demand is present.

9. (Original) A method according to Claim 8, wherein the piping system conveying a liquid is a water line.

10. (Original) A method according to Claim 9, wherein the water line is a residential water line.

11. (Original) A method according to Claim 8, wherein the testing step comprises determining whether there is a flow rate in the piping system that is greater than or equal to a preset minimal user flow rate.

12. (Original) A method according to Claim 11, wherein the minimal user flow rate is about 0.2 gallons per minute.

13. (Original) A method according to Claim 8, wherein the step of determining whether pressure decay is present comprises determining whether the pressure in the piping system has dropped below a minimum acceptable pressure.

14. (Original) A method according to Claim 13, wherein the minimum acceptable pressure is about 15 psig.

15. (Previously Presented) A system useful for detecting a leak in a pressurized piping system, comprising:

- control logic;

- a single, user demand detector in communication with the control logic;

- a pressure decay detector in communication with the control logic; and

- a shut-off valve in communication with the control logic.

16. (Original) A system according to Claim 15, wherein the control logic is designed to close the shut-off valve whenever pressure decay is detected and no user demand has been detected.

17. (Original) A system according to Claim 15, wherein the user demand detector comprises a flow switch.

18. (Original) A system according to Claim 15, wherein the user demand detector comprises a flow meter.

19. (Original) A system according to Claim 15, wherein the pressure decay detector comprises a pressure switch.

20. (Previously Presented) A method according to Claim 1, wherein the single user demand detector comprises a flow switch.

21. (Previously Presented) A method according to Claim 1, wherein the single user demand detector comprises a flow meter.

22. (Previously Presented) A method according to Claim 8, wherein the single user demand detector comprises a flow switch.

23. (Previously Presented) A method according to Claim 8, wherein the single user demand detector comprises a flow meter.

## **APPENDIX II**

### **Office Actions and Amendments**

There are no court or Board proceedings related to this Appeal.